

3/parts
Antenna for vehicleMOTOR VEHICLE ANTENNA

BACKGROUND OF THE INVENTION

1 The present invention relates to the incorporation of an emitting and/or receiving flat-top antenna into a 5 mechanical support particularly in a motor vehicle.

More specifically, the invention relates to the positioning of a flat-top antenna that is of a large size with respect to a mechanical support present in a 10 motor vehicle.

What happens is, the need for communication - emission and/or receiving of information - between the vehicle and elements external to the vehicle, such as remote 15 controls or interactive badges for hands-free access systems entail the use of large-sized antennas which are incorporated in particular into the roof, into the floor, or into the console inside the vehicle.

20 Flat-top antennas consisting of n multi-strand conductors connected one by one by a connector are currently known and are produced using methods known to those skilled in the art. Document JP 57186802 discloses in particular the use of such an arrangement 25 as an antenna.

It is also known practice for antennas of the flat-top type to be positioned out flat on a surface-type mechanical support. Document EP 0 780 027 discloses the 30 incorporation of a flat-top antenna into a small-sized flat rectangular surface. The arrangement described entails folding the flat-top at 45°.

Making folds at 45° is a complicated and lengthy 35 process, particularly when incorporating large-sized flat-top antennas into extensive flat surfaces such as, for example, the roof or the floor of a motor vehicle.

SUMMARY OF THE INVENTION

1 The purpose of the invention is to integrate a flat-top

groove produced in or on the mechanical support,

- the holding means are produced in the form of a clip positioned on the mechanical support or on a wall adjacent to the mechanical support,
- 5 - the holding means are produced in the form of staples,
- the antenna is bonded to the mechanical support or to a wall adjacent to the mechanical support,
- the antenna is incorporated directly into the 10 support by molding,
- the flat-top antenna is incorporated into a vehicle equipped with a hands-free access and/or starting system.

15 Thanks to the installation of the antenna according to the invention it becomes possible for the antenna to be positioned quickly and in a limited number of stages.

In addition, by limiting the area of the antenna facing 20 the metal walls, the interference phenomena that may occur are reduced.

Other features and advantages of the invention will 25 become further apparent from the description which follows. This description is purely illustrative and nonlimiting. It is to be read in conjunction with the appended figures in which:

grw **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1a is a view in section of a motor vehicle 30 showing possible surfaces for incorporation of a flat-top antenna according to the invention

Figure 1b is a view from above of a motor vehicle showing the possible incorporation surfaces of 35 Figure 1a,

Figures 2a and 2b are views in section of the roof of a motor vehicle showing the incorporation and holding of a flat-top antenna according to the invention,

Figures 3a and 3b are views in section of another means of holding the flat-top antenna incorporated into a motor vehicle.

5 DETAILED DESCRIPTION OF THE INVENTION

1 Figures 1a and 1b show, in two different sections, a motor vehicle 1. They show several options for incorporating a flat-top antenna 5 at various locations in the vehicle, particularly in the roof 2, in the 10 console 3 and in the floor 4. It is advantageous to cover the console 3 and the floor 4 with one and the same antenna, so as to avoid destroying the field and to save on one driver.

15 It is also possible to cover the console and the floor independently using two flat-top antennas, taking care to control the radiating patterns of the two antennas.

20 The shape of the antenna thus formed is rectangular, but could be circular, square or any other shape, and its method of incorporation makes it possible to avoid folding.

25 The flat-top antenna according to the invention is incorporated by positioning the flat-top antenna so that it is mainly at right angles to the surface defined by the turns of said antenna. This surface defined by the turns of the antenna corresponds, in the case of the roof of the vehicle, of the console, of the 30 floor or of the console - floor entity, to the surface-type mechanical support on which the flat-top antenna is positioned. Thus, the flat-top antenna is in a position which on the whole is at right angle to the surface-type mechanical support.

35 If the antenna is positioned on the console/floor entity, the flat-top antenna is placed on two juxtaposed mechanical supports which are not in the same plane but which correspond to a surface equivalent